

REMARKS

The present application relates to inbred maize plant and seed PH54M. Claims 1-30 are pending in the present application. Claims 2, 19-22, 25-28, and 30 have been amended. Claim 16 has been canceled. No new matter has been added by way of amendment. Applicant respectfully requests consideration of the claims in view of the following remarks.

Detailed Action

Applicant has amended the specification to include the U.S. Patent No. of the parent application on page 1, lines 10-12 as requested by the Examiner. No new matter has been added.

Applicant further acknowledges that a proper form 1449 Information Disclosure Statement (IDS) has been submitted as requested by the Examiner.

Claim Objections

The Examiner states that "should claims 2 and 3 be found allowable, claims 5 and 6 will be objected to under 37 C.F.R. § 1.75 as being a substantial duplicate thereof". See Office Action, pp. 2-3.

Applicant respectfully traverses this objection. The scope of the claims in claims 2-3 and 5-6 are not the same. Claims 2 and 3 are to a maize plant or maize plant part from the seed having been deposited under ATCC Accession No. PTA-4527. In contrast, claims 5 and 6 are to a maize plant or maize plant part of an F1 hybrid maize seed crossed with a different maize plant. Further, Applicant assert claims 2-3 and 5-6 are in proper dependent form as taught in MPEP § 608.01(n) and 37 C.F.R. § 1.75(c). Moreover, Applicant are aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claims 2-3 and 5-6, were in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this objection be alleviated in light of the above statements.

Double Patenting

The Examiner rejects claims 1-6, 11-18, 23, 24, 28 and 29 under the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-31 of

copending U.S. Patent No. 6,730,836. The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each other. *See* Office Action, pp. 3-5.

Applicant is herein submitting a Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(c), which disclaims any term of a patent issuing from this application which would extend beyond the term of copending U.S. Patent No. 6,730,836.

The Examiner further rejects claims 19-22 and 25-27 under the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-30 of copending U.S. Patent No. 6,730,836 in view of Larkins (U.S. Patent No. 6,232,535). The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each other. *See* Office Action, pp. 5-7.

Applicant is herein submitting a Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(c), which disclaims any term of a patent issuing from this application which would extend beyond the term of copending U.S. Patent No. 6,730,836 in view of Larkins (U.S. Patent No. 6,232,535).

The Examiner further rejects claims 1-6 and 13-16 under the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 9, and 10 of copending U.S. Patent No. 7,019,200. The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each other. *See* Office Action, pp. 7-9.

Applicant is herein submitting a Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(c), which disclaims any term of a patent issuing from this application which would extend beyond the term of copending U.S. Patent No. 7,019,200.

Therefore, Applicant submits that the claims are in proper form for allowance and respectfully request reconsideration and withdrawal of the nonstatutory obviousness-type double patenting rejections.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 2, 3, 20, 22, and 28-30 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. *See* Office Action, pp. 9-10.

The Examiner states that claim 2 is indefinite for insufficient antecedent basis for "F1 hybrid maize seed". Applicant has now amended claim 2 to delete the language "the" and

include the language --an--, in accordance with MPEP § 2173.05(d), thereby alleviating this rejection.

Claim 20 is indefinite according to the Examiner for "the article 'a' in the recitation, 'the single locus was stably inserted into a maize genome by transformation'". Although not acceding to the Examiner's rejection, in an effort to reduce the issues upon appeal, Applicant has now amended claim 20 to include the language --of the plant of claim 11--, as suggested by the Examiner, thus alleviating this rejection.

The Examiner states that claim 22 is indefinite in the recitation "yield enhancement" and "improved nutritional quality". Applicant respectfully traverses. "Yield Advantage" is defined on page 15 of the specification as "the yield advantage of variety #1 over variety #2". Therefore yield enhancement would be the improvement of the trait yield over another variety. Applicant asserts that genes which increase yield by increasing the plants resistance to disease, herbicides, or insects are within the scope of the claims as presented. The specification teaches multiple ways of introgressing or transforming a maize plant with various genes which confer advantageous traits desired in the plant. See specification, pp. 22-34. The specification also teaches many transgenes that could be inserted into the plant of claim 11. See specification, pp. 28-32. In addition, see U.S. Patent No. 5,936,145, issued August 10, 1999, which is prior to the filing date of the instant application. Claim 39 reads as follows: "[t]he single gene conversion of the corn plant of claim 29, where the gene confers enhanced yield stability." Thus, a single gene that confers enhanced yield stability was known in the art prior to the filing date of the instant application. One of skill in the art would recognize that it is common to transform a maize plant with various genes in order to confer desired traits to the maize plant.

Similarly, "improved nutritional quality" would represent an improvement in the nutritional quality versus another variety as described on page 21 of the specification. Further, single genes that affect nutritional quality are known in the art. Specifically genes for modified fatty acids, decreased phytate content and modified carbohydrate compositions which are disclosed in the specification on pp. 31-32. Applicant respectfully submits that one skilled in the art would thus recognize that claim 22 is adequately defined.

Claim 28 is indefinite "as the preamble of the claim indicates that the method is for developing a maize plant breeding program using plant breeding techniques...the claim does not indicate when the maize plant is developed". Applicant traverses this rejection. Applicant has

obtained allowance from the Supervisory Patent Examiner, Anne Marie Grunberg, regarding claim 28 as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Moreover, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claim 28, was in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements.

In light of the above amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph.

Rejections Under 35 U.S.C. § 112, First Paragraph

A. Written description regarding Claim 16

Claim 16 stands rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner states "the claim is broadly drawn towards any maize seed produced by growing a hybrid maize plant, wherein the hybrid maize plant was produced by crossing a maize plant having all the morphological and physiological characteristics of maize plant PH54M with a second maize plant". See Office Action, pp. 10-11.

Although not acceding to the Examiner's rejection, in an effort to expedite prosecution and reduce the issues upon appeal, Applicant has now canceled claim 16, thereby alleviating this rejection.

B. Written description regarding Claims 7-10, 19-22, 25 and 30

Claims 7-10, 19-22, 25 and 30 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. See Office Action, pp. 11-12.

The Examiner states that claim 7 is "drawn to an inbred maize plant cell of inbred maize line PH54M...there is no written description support for such a seed, or plant produced therefrom, in the specification".

Applicant traverses this rejection. Applicant asserts there is adequate written description in the specification for "an inbred maize plant cell" on pages 21-22 of the specification:

As used herein, the term plant includes plant cells, plant protoplasts, plant cell tissue cultures from which maize plants can be regenerated, plant calli, plant clumps, and plant cells that are intact in plants or parts of plants, such as embryos, pollen, ovules, seeds, flowers, kernels, ears, cobs, leaves, husks, stalks, roots, root tips, anthers, silk and the like. Specification, p. 22-23.

Applicant asserts that the use of this terminology would be well understood to one ordinarily skilled in the art. In addition, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claim 7, were in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements.

The Examiner goes on to state that claim 19 lacks written description support for "single locus conversion". Although not acceding to the Examiner's rejection, in an effort to expedite prosecution, Applicant has amended claims 19-22 to read "single gene conversion", as supported in the specification on page 21, further defining the claims. Applicant further submits that the terms "single gene conversion" and "single locus conversion" are synonymous and would be well understood by one of ordinary skill in the art. Applicant respectfully submits that one skilled in the art would thus recognize that Applicant has adequately described claim 19.

The Examiner states that claim 25 "does not have support for '0-5 generations'". Applicant traverses this rejection. Applicant asserts the specification provides adequate written description for the claimed language:

Pedigree breeding starts with the crossing of two genotypes, each of which may have one or more desirable characteristics that is lacking in the other or which complements the other. If the two original parents do not provide all the desired characteristics, other sources can be included in the breeding population. In the pedigree method, superior plants are selfed and selected in successive generations. In the succeeding generations the heterozygous condition gives way to homogeneous lines as a result of self-pollination and selection. Typically in the pedigree method of breeding five or more generations of selfing and selection is practiced: $F_1 \rightarrow F_2$; $F_2 \rightarrow F_3$; $F_3 \rightarrow F_4$; $F_4 \rightarrow F_5$, etc. Specification, pp. 3-4.

It is also important to note that after five or more backcross generations with selection for the desired trait, the progeny will be homozygous for loci controlling the characteristic being transferred, but will be like the superior parent. *See* specification, p. 4, ll. 13-16. Applicant respectfully submits that one skilled in art would recognize that Applicant has adequately described claim 25.

Furthermore, in an effort to expedite prosecution Applicant has amended claim 25 in a manner which has obtained allowance from the Supervisory Patent Examiner, Anne Marie Grunberg, as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Moreover, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claim 25, was in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements.

The Examiner further states that claims "there is no support for step (c) of claim 30.

Although not acceding to the Examiner's rejection, in an effort to expedite prosecution, Applicant has amended claim 30 in a manner which has obtained allowance from the Supervisory Patent Examiner, Anne Marie Grunberg, as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Thus, Applicant respectfully requests this rejection be alleviated in light of the amendment and the above statements.

One skilled in the art would thus recognize that Applicant has fully described and fully satisfied the legal standards of written description for claims 7-10, 19-22, 25 and 30 as of the filing date of the application. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the written description rejections under 35 U.S.C. §112, first paragraph.

C. Enablement regarding Claims 7-10

Claims 7-10 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. *See* Office Action, pp. 12-13.

The Examiner states that claim 7 is not enabled. Applicant traverses this rejection. Applicant asserts that claim 7 is adequately described and further enabled as evidenced by the statements described *supra*. Further, Applicant is aware that in view of a meeting with the

Group Director in July 2006, the Examiner's were informed that the present claim set, including claim 7, was in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements

Applicant further asserts that dependent claims 8-10 are also adequately described and enabled. The Examiner does not provide explanation as to why these claims are not enabled. Nevertheless, Applicant maintains the arguments described *supra* also apply to dependent claims 8-10. Moreover, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claims 8-10, was in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements.

Accordingly, Applicant submits that claims 7-10 are fully enabled and have fully satisfied the legal standards for enablement. Applicant respectfully requests reconsideration and withdrawal of the enablement rejections under 35 U.S.C. § 112, first paragraph.

Rejections Under 35 U.S.C. §§ 102(b)/103(a)

Claim 16 is rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Johnson (U.S. Patent 5,859,355). The Examiner states that "seed may have been produced from a method different from those of the instantly claimed seed. However the instantly claimed products do not appear to differ from the products taught by the reference". See Office Action, pp. 13-14.

Although not acceding to the Examiner's rejection, in an effort to expedite prosecution, claim 16 has been canceled, thus alleviating this rejection. Applicant respectfully requests the Examiner withdraw the rejections to claim 16 under 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) as obvious over Johnson (U.S. Patent 5,859,355).

Request for Information under 37 C.F.R. § 1.105

The Examiner has made a Request for Information under 37 C.F.R. § 1.105. The Examiner states the requested information is "required to make a meaningful and complete search of the prior art". See Office Action—Request for Information Under 37 C.F.R.

§ 1.105, pp. 16-18.

Applicant provides answers to each of the Examiner's interrogatories discussed *infra*.

The Examiner begins by asking firstly, what were the original parental maize lines used to produce maize inbred line PH54M? Please supply information pertaining to the lineage of the original parental lines back to any publicly available varieties. PHAA0 and PHBM0. Information pertaining to the lineage of the original parental lines is available within the PVP Application No. 200200008, attached as Appendix 1.

Secondly, what method and steps were used to produce maize inbred line PH54M? Pedigree selection method produced by selfing and selection for 6 generations.

Third, have any of said parental maize lines or progeny therefrom been disclosed or made publicly available?

a. The parental maize line PHAA0 was previously disclosed or made publicly available in PVP Certificate No. 9400091 and U.S. Patent No. 5,602,317. The parental maize line PHBM0 has not been previously publicly disclosed or made publicly available.

b. No other progeny of the parental cross PHAA0/PHBM0 was previously publicly disclosed or made publicly available by Applicant prior to the earliest priority date

Fourth, were any other maize lines produced by said method using said original parental maize lines, and if so, have said produced maize lines been publicly available or sold? If so, under what designation/denomination and under what conditions were said other maize lines disclosed or made publicly available? No other maize line using the same F1 cross has been produced by said method using said original parental maize lines at or before the time of filing of the instant application.

In light of the above remarks, Applicant respectfully requests reconsideration and compliance with the interrogatories under the Request for Information under 37 C.F.R. § 1.105.

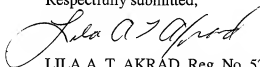
Conclusion

In conclusion, Applicant submits in light of the above amendments and remarks, the claims as amended are in a condition for allowance, and reconsideration is respectfully requested. If it is felt that it would aid in prosecution, the Examiner is invited to contact the undersigned at the number indicated to discuss any outstanding issues.

Please consider this a one month extension of time from December 8, 2006 to January 8, 2007, under the provision of 37 C.F.R. § 1.136(a) and charge Deposit Account No. 26-0084 for the amount of \$120.00. No other fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any fees inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Lila A. T. Akrad".

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